DOCUMENT RESUME

ED 347 088 SE 052 923

AUTHOR Buydos, John F., Comp.
TITLE Desalination. LC Science Tracer Bullet.
INSTITUTION Library of Congress, Washington, DC. Science and Technology Div.
REPORT NO ISSN-0090-5232; TB-91-5
PUB DATE Jun 91
NOTE 12p.
AVAILABLE FROM Science Reference Section, Science and Technology Division, Library of Congress, 10 First Street, S.E. Washington, DC 20540
PUB TYPE Guides - Non-Classroom Use (055) -- Reference Materials - Bibliographies (131)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Chemistry; *Drinking Water; Earth Science; *Library Catalogs; Library Materials; *Literature Reviews; Reference Materials; *Reference Services; Science Education; Water Resources; *Water Treatment
IDENTIFIERS *Desalination

ABSTRACT

This guide provides a review of the relevant literature on desalination within the collections of the Library of Congress. While not intended as a comprehensive bibliography, this guide is designed as a quick and ready reference source for the reader, and includes the following sections: (1) articles that provide introductions to the topic of desalination; (2) subject headings under which books on desalination can be located within the Library of Congress; (3) basic textbooks on desalination; (4) additional titles related to desalination; (5) special reports on desalination; (6) conference proceedings; (7) government publications; (8) bibliographies; (9) dissertations; (10) selected dissertations; (11) abstracting and indexing services that provide listings for relevant journal articles and other literature; (12) representative journal articles; (13) guides where reports and other types of literature are indexed; (14) selected technical reports sold by the National Technical Information Service; (15) selected materials available in the Science Reading Room pamphlet boxes; and (16) additional sources of information. (JJK)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

SE

LC Science Tracer Bullet

Science Reference Section, Science and Technology Division
Library of Congress, 10 First Street, S.E., Washington, D.C. 20540

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

John F. Price

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

ISSN 0090–5232

DESALINATION
Compiled by John F. Buydos

TB 91-5 **June 1991**

ED347088

SCOPE: Over the last few decades desalination technologies have been used increasingly throughout the world to produce drinking water from brackish groundwater and seawater, to improve the quality of existing supplies of fresh water for drinking and industrial purposes, and to treat industrial and municipal wastewater prior to discharge or reuse. Desalination technologies include distillation (multiple-effect evaporation, multi-stage flash distillation, vapor compression, and solar distillation), reverse osmosis, electrodialysis, ion exchange, and freeze desalination. The selection of the most appropriate desalination technology for a particular use depends on many site-specific factors. Many of these same technologies can also be used to remove contaminants other than salt from water supplies. This guide furnishes a review of relevant literature on desalination in the collections of the Library of Congress. Not intended as a comprehensive bibliography, this guide is designed--as the name of the series implies--to put the reader "on target."

INTRODUCTIONS TO THE TOPIC

Buros, O. K. Desalting practices in the United States. In American Water Works Association. Journal, v. 81, Nov. 1989: 38-42. Pamphlet box* and TD201.A512

Buros, O. K. The desalting ABCs. Topsfield, Mass., International Desalination Association, 1990. 22 p. Pamphlet box*

Using desalination technologies for water treatment: background paper. Washington, Congress of the United States, Office of Technology Assessment, U.S. Govt. Print. Off., 1988. 66 p. Pamphlet box* and TD478.3.U85 1988
"OTA-BP-O-46."
Bibliography: p. 63-66.

Van der Leeden, Frits, Fred L. Troise, and David Keith Todd. The water encyclopedia. 2nd ed. Chelsea, Mich., Lewis Publishers, c1990. 808 p.
Includes bibliographical references. TD351.V36 1990 Desk*
See especially Chapter 8. Water resources management. Section G. Desalination, p. 701-706.

*Available in reference collection, Science Reading Room

SE052923

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
X This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality.
• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

BEST COPY AVAILABLE

SUBJECT HEADINGS used by the Library of Congress, under which books on desalination can be located in most card, book, and online catalogs, include the following:

SALINE WATER CONVERSION (Highly relevant)
See also subdivisions under saline water conversion, ADSORPTION, DISTILLATION PROCESS, FLASH DISTILLATION PROCESS, ELECTRODIALYSIS PROCESS, HYDRATE PROCESS, ION EXCHANGE PROCESS, PIEZODIALYSIS PROCESS, REVERSE OSMOSIS PROCESS
SALINE WATER CONVERSION EQUIPMENT INDUSTRY (Highly relevant)
SALINE WATER CONVERSION PLANTS (Highly relevant)
SOLAR SALINE WATER CONVERSION PLANTS (Relevant)
ELECTRODIALYSIS (Related)
MEMBRANES (TECHNOLOGY) (Related)
REVERSE OSMOSIS (Related)
SALINE WATERS (Related)
SEA-WATER, DISTILLATION OF (Related)
WATER--PURIFICATION--ION EXCHANGE PROCESS (Related)
WATER--PURIFICATION--REVERSE OSMOSIS PROCESS (Related)
DRINKING WATER--PURIFICATION (More general)

BASIC TEXTS

Awerbuch, Leon. Desalination technology: an overview. In The Politics of scarcity: water in the Middle East. Edited by Joyce R. Starr and Daniel C. Stoll. Boulder, Westview Press, 1988. p. 53-61. Pamphlet box* and HD1698.M53P65 1988

Eisenberg, Talbert N., and E. Joe Middlebrooks. Reverse osmosis treatment of drinking water. Boston, Butterworths, c1986. 271 p. TD480.4.E38 1986
Bibliography: p. 249-259.

Reverse osmosis technology: applications for high-purity-water production. Edited by Bipin S. Parekh. New York, M. Dekker, c1988. 516 p. (Chemical industries, v. 35) TD480.4.R48 1988
Includes bibliographies.

Saline water processing: desalination and treatment of seawater, brackish water, and industrial waste water. Edited by Hans-Günter Heitmann. Weinheim, Federal Republic of Germany; New York, VCH, c1990. 332 p. TD479.S25 1990*
Includes bibliographical references.

Spiegler, K. S., and Alan D. K. Laird, eds. Principles of desalination. 2nd ed. New York, Academic Press, 1980. 2 v. TD479.S6 1980*
Includes bibliographies.

ADDITIONAL TITLES

Desalination technology: developments and practice. Edited by Andrew Porteous. London, New York, Applied Science Publishers; New York, sole distributor in the USA and Canada, Elsevier Science Pub. Co., c1983. 271 p. TD479.D47 1983
Includes bibliographical references.

Dupont, R. Ryan, Talbert N. Eisenberg, and E. Joe Middlebrooks. Reverse osmosis in the treatment of drinking water. Logan, Utah, Utah Water Research Laboratory, Utah State University, 1982. 103 p. (Water quality series, UWRL/Q-82/05) TD480.4.D87 1982
Bibliography: p. 73-82.

Electrodialysis (ED) & electrodialysis reversal (EDR) technology. Edited by Floyd H. Meller. Watertown, Mass., Ionics, Inc., 1984. 66 p. Pamphlet box*

Measurements and control in water desalination. Edited by Noam Lior. Amsterdam, New York, Elsevier, 1986. 470 p. (Desalination and water purification, v. 2)
Published also as a special issue of Desalination (TD478.D4), v. 59.
Includes bibliographies. TD479.2.M43 1986

Synthetic membrane processes: fundamentals and water applications. Edited by Georges Belfort. Orlando, Fla., Academic Press, 1984. 552 p.
Includes bibliographies. TD480.4.S94 1984

Theory and practice of reverse osmosis. Editor, R. Bakish. Englewood, N.J., International Desalination Association, 1985. 359 p. (International Desalination Association. Monograph, no. 1) TP156.O7T47 1985
Includes bibliographies.

SPECIALIZED TITLES

Burns and Roe. Universal design. Washington, U.S. Office of Saline Water; U.S. Govt. Print. Off., 1969. 5 v. TD479.4.B85
Includes bibliographical references.
Contents: v. 1. Report on design of a 2.5 million gallon per day universal desalting plant.--v. 2. User's manual, part I: 2.5-mgd universal desalting plant.--v. 3. User's manual, part II: 2.5-mgd universal desalting plant.--v. 4. Bidding specification, 2.5-mgd universal desalting plant.--v. 5. Technical specification, 2.5-mgd universal desalting plant.

Desalination and water re-use technologies in Japan, annual report ... Tokyo, Japan, Water Re-Use Promotion Center, 1981- annual. TD429.5.D47
LC holds only 1981.

Khan, Arshad Hassan. Desalination processes and multistage flash distillation practice. Amsterdam, New York, Elsevier, 1986. 596 p. (Desalination and water purification, 1) TD479.K48 1986
Bibliography: p. 589-592.

Saline water use and disposal opportunities, special report: Colorado River water quality improvement program. United States Department of the Interior, Bureau of Reclamation, Lower Colorado Region, Upper Colorado Region, Colorado River Water Quality Office. Denver, The Bureau, 1981. 165 p. in various pagings. TD478.3.S25 1981
Includes bibliographical references.

Schutte, C. F. Desalination: a South African perspective. Pretoria, Water Research Commission, 1983. 111 p. TD478.6.S6S38 1983
Bibliography: p. 109-111.

CONFERENCE PROCEEDINGS

AWWA Seminar on Membrane Processes, Principles and Practices, Orlando, Fla., 1988. Proceedings. AWWA Seminar on Membrane Processes, Principles and Practices, Annual Conference, Orlando, Fla., June 19, 1988; sponsored by the Water Quality Division. Denver, American Water Works Association, c1988. 76 p.
Includes bibliographical references. TD480.4.A99 1988

Desalination and water re-use: proceedings of the twelfth international symposium. Miriam Balaban (editor). Rugby, UK, Institution of Chemical Engineers; New York, Hemisphere Pub. Corp., c1991. 4 v. (Institution of Chemical Engineers, Symposium series, no. 125) TD478.D44 1991
Proceedings of the Twelfth International Symposium on Desalination and Water Re-Use, held in Malta, April 15-18, 1991, organized by the Institution of Chemical Engineers.
"EFCE event no. 440."
Includes bibliographical references and indexes.

Desalination in South Florida. Proceedings of a seminar held at MacArthur's Holiday Inn, August 21, 1987, Palm Beach Gardens, Florida. Editor, O. K. Buros. Sponsored by the National Water Supply Improvement Association (NWSIA) and the South Florida Water Management District (SFWMD). [s.l., 1987?] 198 p.
[not yet cataloged]

National desalination conferences: proceedings of the fifteenth conference: water desalination and re-use, Ashqelon, Israel, 30th May-1st June, 1983. David Ashboren, editor. Jerusalem, Ministry of Science and Development, National Council for Research and Development, 1983. 355 leaves.
Includes bibliographies. TD478.6.I75N368 1983

1990 biennial conference proceedings. National Water Supply Improvement Association. Walt Disney World Village, Florida, August 19-23, 1990. Sponsored by the International Desalination Association, California Association of Reclamation Entities of Water, Orange County Public Utilities Division, and South Florida Water Management District. [s.l., 1990?] 2 v. [not yet cataloged]

GOVERNMENT PUBLICATIONS

Oak Ridge National Laboratory. Office of Saline Water special report on status of desalting. Prepared for the PSIAC comprehensive framework study by Oak Ridge National Laboratory and Office of Saline Water. Washington, U.S. Dept. of the Interior; U.S. Govt. Print. Off., 1970 [i.e., 1971] 111 p. TD479.U46
Includes bibliographical references.

United Nations. Dept. of Economic and Social Affairs. First United Nations desalination plant operation survey; a technical and economic analysis of the performance of desalination plants in operation. New York, United Nations, 1969. 122 p. (United Nations. [Document] ST/ECA/112) N&CPR and TD479.U43

United Nations. Dept. of Economic and Social Affairs. Second United Nations desalination plant operation survey: a technical and economic analysis of the performance of desalination plants in operation. Department of Economic and Social Affairs. New York, United Nations, 1973. 126 p. (United Nations. [Document] ST/ECA/171) N&CPR

United States. Bureau of Land Management. Salinity control on BLM-administered public lands in the Colorado River Basin: a report to Congress. U.S. Department of the Interior, Bureau of Land Management. Washington, The Bureau, 1987. 43 p. TD225.C665U52 1987

BIBLIOGRAPHIES

Boleszny, Ivan. Desalination of water. Adelaide, State Library of South Australia, 1969. v. 1. 214 p. (South Australia. State Library. Research service bibliographies, ser. 4, no. 120) Z1009.S73 no. 120

Lockerby, Robert W. Desalination technology. Monticello, Ill., Vance Bibliographies, 1981. 12 p. (Public administration series--bibliography, P-668) Z7935.L6

Merkaz le-meda' tekhnologi u-mada'i. Literature on saline water conversion available in the Library of the Sea-Water Conversion Commission, as of Jan. 1970. 5th cumulative ed., covers 1959-1969. Tel-Aviv, National Council for Research and Development, Center of Scientific and Technological Information, 1970. 1 v. (various pagings) Z7935.M47

Schamus, J. J. Bibliography of saline water conversion literature. Washington, U.S. Dept. of the Interior, 1965. 1 v. (various pagings) (Office of Saline Water. Research and development progress report, no. 146.) TD478.U5 no. 146

Seĭtkurbanov, Sapargel'dy. Opresnenie solenykh vod. Ashkhabad, U.S.S.R., Ylyim, 1977. 169 p. Z7935.S38

Siddiqui, M. A. Vakil. Selected and annotated bibliography on saline water conversion. Kuwait, Kuwait University, Libraries Dept., 1972. 202 p. (Kuwait University. Libraries Dept. Bibliographic series, no. 5) Z7935.S42

DISSERTATIONS can be located by using the following indexes located in the Library's Main Reading Room:

Comprehensive Dissertation Index 1861/1972- (1973- annual) Z5053.X47 1973

Dissertation Abstracts International (1938- monthly) Z5053.D57

Dissertation Abstracts International (CD-ROM--same coverage as print volumes)

SELECTED DISSERTATIONS (available in Microform Reading Room)

Assouad, Yannick Therese. Combined heat and mass transfer as applied to desalination and liquid desicant cooling systems. 3 microfiche, 4 x 6 in.
Collation of the original: 246 p. UMI Microfiche AAC8517568 MicRR
Bibliography: p. R.1-R.4
Thesis (doctoral)--Illinois Institute of Technology, 1985.
Abstracted in Dissertation Abstracts International, v. 46B, Dec. 1985: 2019.

Byrd, Larry Wayne. Freezer model using a population balance approach for steady-state, direct-contact, secondary refrigerant, freeze desalination. 2 microfiche, 4 x 6 in. UMI Microfiche AAC8507355 MicRR
Collation of the original: 131 p.
Bibliography: p. 96-98.
Thesis (doctoral)--North Carolina State University, 1984.
Abstracted in Dissertation Abstracts International, v. 46B, Aug. 1985: 614.

Carta, Giorgio. Periodic countercurrent operation of sorption processes applied to water desalination with thermally regenerable ion-exchange resins. 3 microfiche, 4 x 6 in. UMI Microfiche AAC8500861 MicRR
Collation of the original: 278 p.
Bibliography: p. 196-200.
Thesis (doctoral)--University of Delaware, 1984.
Abstracted in Dissertation Abstracts International, v. 45B, May 1985: 3565.

Irwin, Kenneth James. A study of concentration polarization and solution-membrane interactions in the electrodialytic desalination process. 5 microfiche, 4 x 6 in.
Collation of the original: 419 p. UMI Microfiche AAC8903065 MicRR
Bibliography: p. 201-212.
Thesis (doctoral)--University of Rhode Island, 1988.
Abstracted in Dissertation Abstracts International, v. 49B, May 1989: 4925.

ABSTRACTING AND INDEXING SERVICES which index relevant journal articles and other literature include:

Applied Science & Technology Index (1913-) Z7913.I7* and CD-ROM
See: Saline Water Conversion

Aquatic Sciences & Fisheries Abstracts (1971-) QH90.A1A68* and CD-ROM
See: Desalination
Desalination Plants

Current Technology Index (1962-) Z7913.B7*
See: Sea: Water: Desalination
Water, Saline: Desalination

Desalination Abstracts (1966-84) TD478.D43
See: Desalination, general; or name of desired process

Energy Information Abstracts (1976-) TJ163.2.E482*
See: Desalination

Energy Research Abstracts (1976-) Z5853.P83U544b*
See: Desalination
Desalination Plants

Engineering Index (1884-) Z5851.E62* and CD-ROM
See: Desalination

Environment Abstracts (1971-) GF1.E553*
See: Desalination

Environmental Periodicals Bibliography (1972-) Z5863.E57E58*
See: Desalination

General Science Index (1978-) Z7401.G46*
See: Saline Water--Desalting

Magazine Index (1980-) Available in several formats in LC
See: Saline Water Conversion
Saline Water Conversion Plants

Oceanic Abstracts (1968-) GC1.O24*
See: Desalination
Desalination Plants

Note: Consult reference librarian for location of abstracting and indexing services in the Science Reading Room.

PAIS Bulletin (1915-) Z7163.P9
See: Saline Water--Desalting

Pollution Abstracts (1970-) TD172.P65*
See: Desalination
Desalination Plants

Readers' Guide to Periodical Literature (1900-) AI3.R48
See: Saline Water Conversion

Selected Water Resources Abstracts (1968-) TC1.S45*
See: Desalination

REPRESENTATIVE JOURNAL ARTICLES

Abdel-Aal, H. K., and others. Recovery of mineral salts and potable water from desalting plant effluents by evaporation. Part II. Proposed simulation system for salt recovery. Separation science and technology, v. 25, no. 4, 1990: 437-461. TP156.S45S4

Abdullina, N. D., and P. A. Dzhubalieva. Experimental investigations of solar desalinization units of various designs. Applied solar energy, v. 25, no. 6, 1989: 58-60. TJ810.G413

Caouris, Y. G., E. T. Kantsos, and N. G. Zagouras. Economic aspects of low-temperature multi-effect desalination plants. Desalination, v. 71, Feb. 1989: 177-201. TD478.D4

Darwish, M. A., M. Abdel-Jawad, and Awad El-Hadek. The mechanically driven heat recovery system of vapour compression desalters. Heat recovery systems & CHP, v. 10, no. 5/6, 1990: 447-456. TJ260.J58

El-Nashar, Ali M. Computer simulation of the performance of a solar desalination plant. Solar energy, v. 44, no. 4, 1990: 193-205. TJ810.S6

Hsu, Tah-Ben, and Robert L. Pigford. Salt removal from water by continuous ion exchange using thermal regeneration. Industrial & engineering chemistry research, v. 28, Sept. 1989: 1345-1351. TP1.I618

Jabboury, Bassam G., and Mohamed A. Darwish. The effect of the operating parameters of heat recovery steam generators on combined cycle/sea-water desalination plant performance. Heat recovery systems & CHP, v. 10, no. 3, 1990: 255-267. TJ260.J58

Öztaşan, Aysun, and Kemal Taner. A solar desalination plant for conditions in Turkey. Solar & wind technology, v. 6, no. 3, 1989: 213-216. N&CPR

Punzi, Vito L., Gregory P. Muldowney, and Thomas J. Hull. An evaluation of reverse osmosis solute rejection model performance at elevated pressure and high feed concentration. Industrial & engineering chemistry research, v. 29, Feb. 1990: 278-282. TP1.I618

Radchenko, Yu. M., M. I. Ponomarev, and V. D. Grebenyuk. Water demineralization in electro-ionite apparatus with continuous ionite regeneration. Soviet journal of water chemistry and technology, v. 11, no. 8, 1989: 95-98. TD204.K46

Satre, M. D., N. D. Ghatge, and M. P. S. Ramani. Aromatic polyamide-hydrazides for water desalination. I. Syntheses and RO membrane performance. Journal of applied polymer science, v. 41, no. 3/4, 1990: 697-712. TP156.P6J6

Slesarenko, V., and A. Shtim. Determination of seawater enthalpy and entropy during the calculation of thermal desalination plants. Desalination, v. 71, Feb. 1989: 203-210. TD478.D4

Tapping seawater in China. Water/engineering & management, v. 136, Dec. 1989: 12-13. TD1.W36

Watson, B. M., and C. D. Hornburg. Low-energy membrane nanofiltration for removal of color, organics and hardness from drinking water supplies. Desalination, v. 72, Apr./May 1989: 11-22. TD478.D4

Wu, Yonglie, and E. Drioli. The behaviour of membrane distillation of concentrated aqueous solution. Water treatment, v. 4, no. 4, 1989: 399-415. TD430.W373

Zagouras, N. G., and E. T. Kantsos. Engineering relations for economic production functions of solar low-temperature multi-effect desalination. Desalination, v. 78, Oct. 1990: 381-387. TD478.D4

REPORTS and other types of literature are indexed in the following guides:

Government Reports Announcements & Index (1946-) Z7916.G78*
See: Desalination
Desalination Plants
See also key words, e.g. Desalination in NTIS Title Index on Microfiche (1964-)*

Monthly Catalog of United States Government Publications (1895-) Z1233.A18*
See: Desalination

Scientific and Technical Aerospace Reports (1963-) TL500.S35*
See: Desalinization

SELECTED TECHNICAL REPORTS, sold by the National Technical Information Service, Springfield, Virginia 22161, include the following:

Conceptual design and cost study for a dual-purpose nuclear-electric reverse osmosis seawater conversion plant. San Francisco, Calif., Bechtel National, Inc., Apr. 1979. 130 p. ORNL/TM-6821**

Riley, R. L., and others. Research and development on a spiral-wound membrane system for single-stage seawater desalination. San Diego, Calif., Universal Oil Products Co., Fluid Systems Div., Oct. 1979. 284 p. PB80-114705**

SOLERAS (Program). Solar energy water desalination project, rural solar applications. Final report, executive summary. Kansas City, Mo., Published for the United States-Saudi Arabian Joint Program for Cooperation in the Field of Solar Energy (SOLERAS) by the program operating agent, Midwest Research Institute; Springfield, Va., Available from the National Technical Information Service, U.S. Dept. of Commerce, 1985? 83 p.
TD479.7.S65 1985 and MRI/SOL 0400**

SELECTED MATERIALS available in the Science Reading Room pamphlet boxes include:

Akkad, Adnan A. Conservation in the Arabian Gulf countries. In American Water Works Association. Journal, v. 82, May 1990: 40-50.

American Water Works Association. Water Desalting and Reuse Committee. Committee report: membrane desalting technologies. In American Water Works Association. Journal, v. 81, Nov. 1989: 30-37.

Desalination. In Meteorology and oceanography of the Middle East. Washington, U.S. Dept. of Commerce, National Oceanic and Atmospheric Administration, National Environmental Satellite, Data, and Information Service, National Oceanographic Data Center, March 1991. (Library and Information Services Division. Current references, 91-3) p. 7-44.

El-Saie, M. H. Ali. Desalination at the crossroads. Desalination, v. 78, Oct. 1990: 305-311.

Friedman, Roberta. Seawater to drink. Technology review, v. 92, Aug./Sept. 1989: 14-15.

Jawad, M. A. Future for desalination by reverse osmosis. Desalination, v. 72, Apr./May 1989: 23-28.

Smith, Dennis. From brine to sublime. Public works, v. 121, Dec. 1990: 35-37.

Suri, R. K., A. M. R. Al-Marafie, A. A. Al-Homoud, and G. P. Maheshwari. Cost-effectiveness of solar water production. Desalination, v. 71, Feb. 1989: 165-175.

**Available in microform collection, Science Reading Room

ADDITIONAL SOURCES OF INFORMATION

International Desalination Association
P.O. Box 387
Topsfield, MA 01983
Telephone: (508) 356-2727
FAX: (508) 356-9964

National Water Information Clearinghouse
U.S. Geological Survey
423 National Center
12201 Sunrise Valley Drive
Reston, VA 22092
Telephone: (800) 426-9000

National Water Supply Improvement Association (NWSIA)
P.O. Box 102
St. Leonard, MD 20865
Telephone: (301) 855-1173
FAX (301) 586-2844
(National affiliate of the International Desalination Association)